

Flight Scientist Report  
Wednesday 12/1/2021 ACTIVATE RF95

Flight Type: Statistical Survey Flight  
Flight Route: ECG OXANA PERDO OXANA ECG  
Special Notes: Maybe some smoke influence from the Southeast US

**King Air**

Pilot report (Wusk):

2nd Research flight of Campaign 5, 3.5 hours flown; KLFI-ECG-OXANA-PERDO-OXANA-ECG-KLFI. Taxi out with HU-25, take off Runway 8 about 2 minutes after. ATC held us on westerly longer than normal after departure. Forward FOD door open only with assist by researcher. Direct ECG and up to FL280. Dropsondes dropped as planned along route. On return descended to FL240 about 100nm east of ECG for cirrus at FL240-280. Eventually got to FL220 until ECG. Performed uneventful RTB and ILS 08 approach to KLFI. All aircraft systems performed nominally. Aircraft position coordination acceptable throughout flight, with B200 behind at TO, remaining behind HU for most of eastbound. HU extended some past PERDO and better colocation on westbound leg (B200 descent to FL240-240 helped with decreased headwinds) Aircraft ready for next research flight planned on 12/3/2021. Crew was Jamison, Wusk, and Shingler. (Land time adjusted one minute from 18:55 to match FDC system 3.5 duration of flight)

Flight scientist report (Shingler):

Leg 1 has a fairly clear atmosphere down to 4kft with only light scattering in the MBL below. Light cirrus at altitude near/at OXANA. Leg 2 shows scattered shallow cu between 3-6kft. Elevated depol seen between surface and 2 kft for half of this leg. Depol drops off above 2kft while still under cloud layer. Leg 3 Light cirrus above flight altitude about halfway through leg. Scattered shallow cu between 3-6kft. Leg 4 cirrus from FL220 to ac alt. Descended to try to get underneath. BL dropped off to less than 1kft before reaching OBX. All instruments were operational.

Sondes:

OXANA

PERDO

1/2 PERDO OXANA

COAST

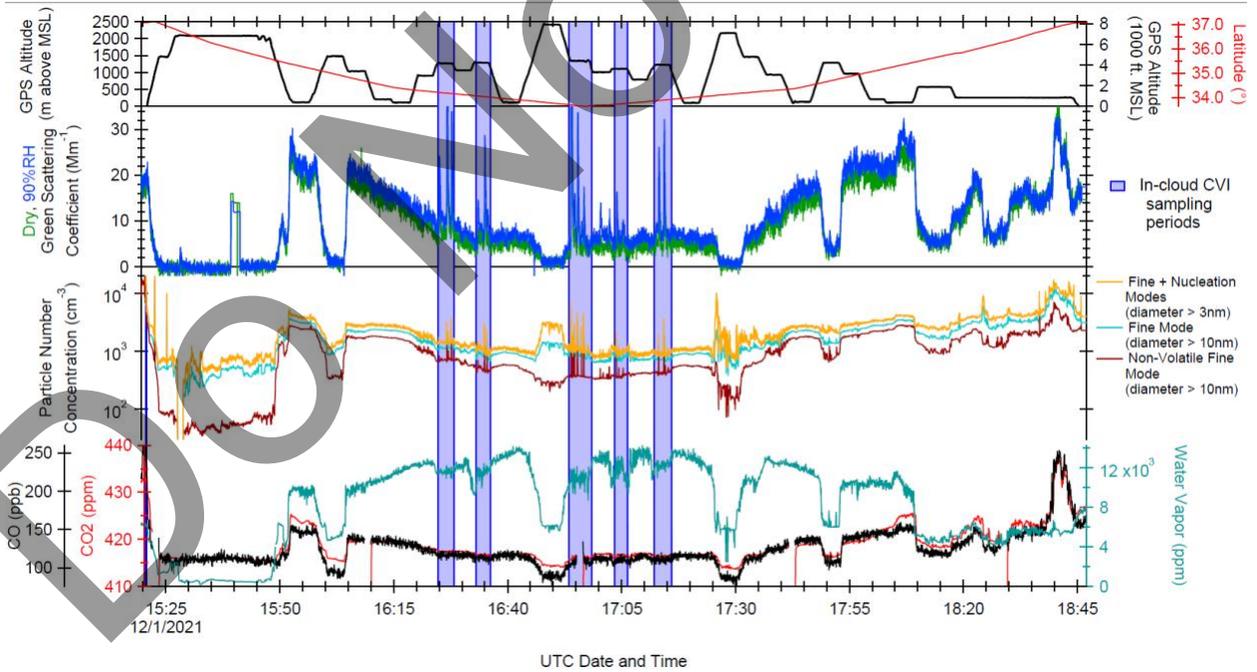
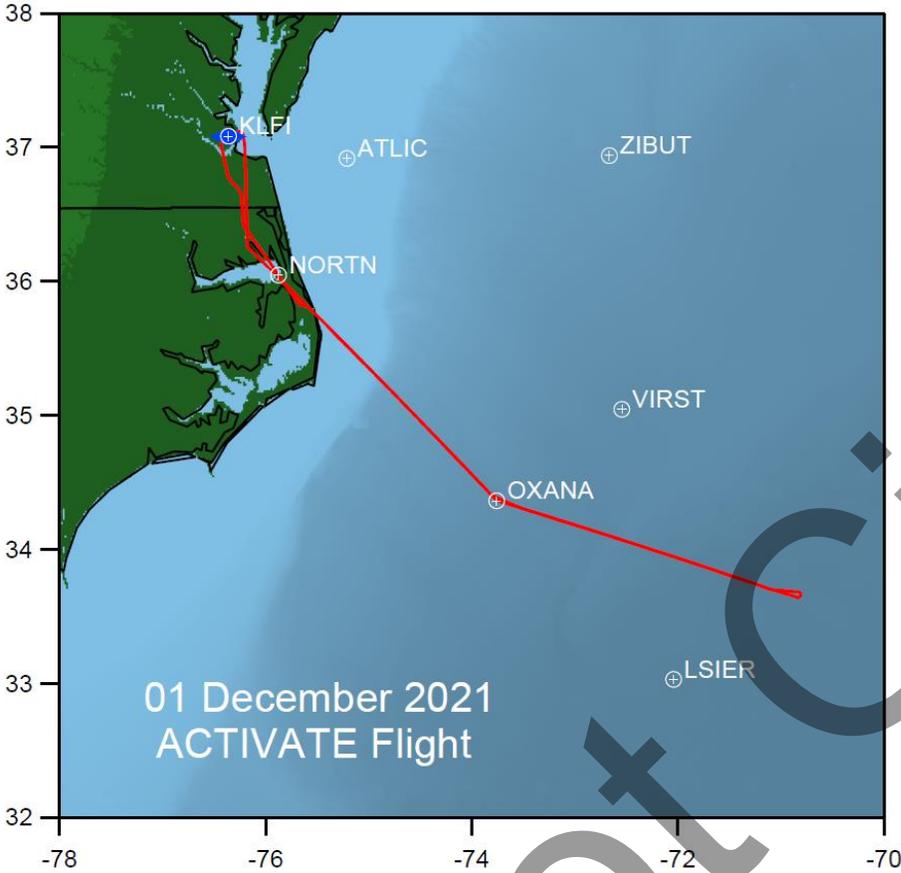
## **Falcon**

Pilot report (Slover):

Mission flow as planned as a statistical survey flight. KLFI - ECG - OXANA - PERDO and reverse. Clouds were around 3500-5500 feet and began after OXANA. Prior to that clear air sampling at min alt, below boundary level and above boundary levels were flown. Min Altitudes of 500 and 800 feet above sea level were flown as well as below cloud base, above cloud base, below cloud top and above cloud top.

Flight scientist report (Crosbie):

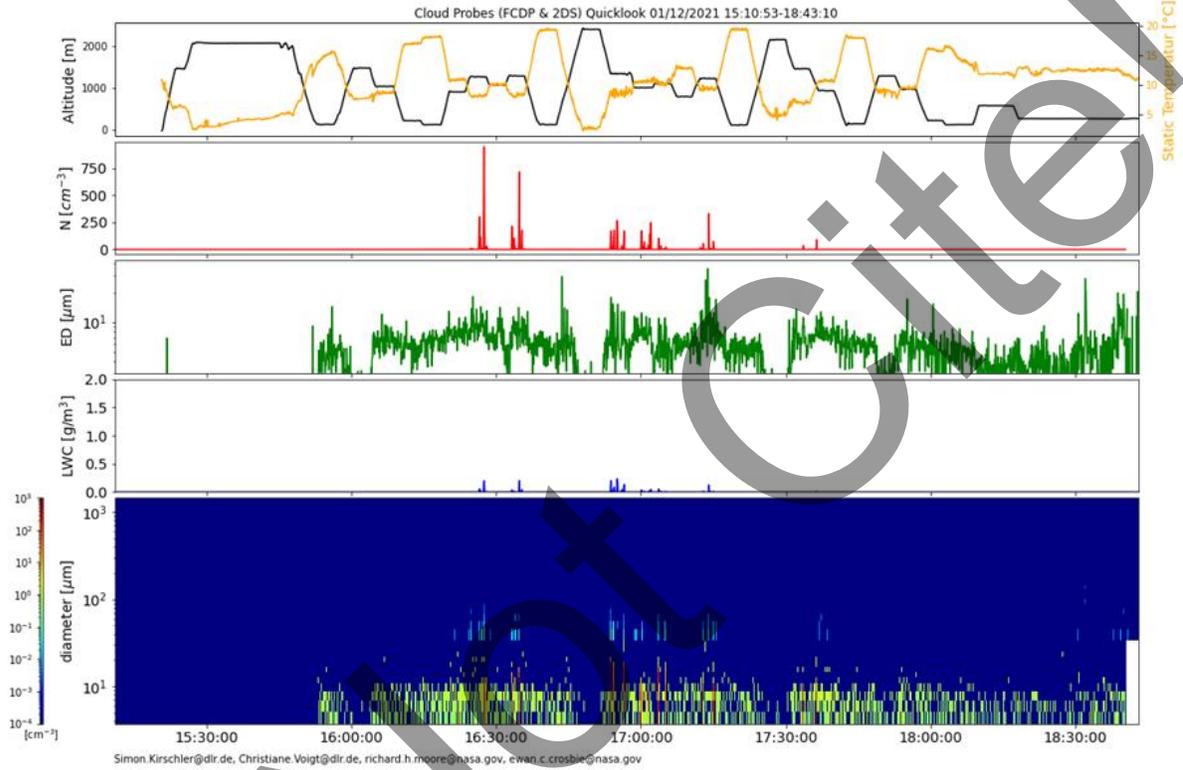
Similar overall conditions to the previous flight. The cloud layer was located further offshore past OXANA. The clouds also appeared to become deeper in places taking on more cumulus characteristics with some cloud spreadout near the inversion which was actually quite weak. The bases were high again with a deep well mixed subcloud layer, although it seemed like it was not as energetic as the previous day just based on the "ride". There was smoke in the boundary layer near the coast where the boundary layer was shallow. The ORG and scattering decreased with distance offshore to a more marine signature past OXANA where SO<sub>4</sub> became slightly enhanced. The smoke did not extend much above the shallow layer near the surface at the coast although the vertical gradient was not sharp at least on the outbound leg.



# Quicklook ACTIVATE Cloud Probes (FCDP & 2DS) Quicklook

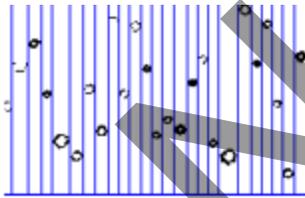
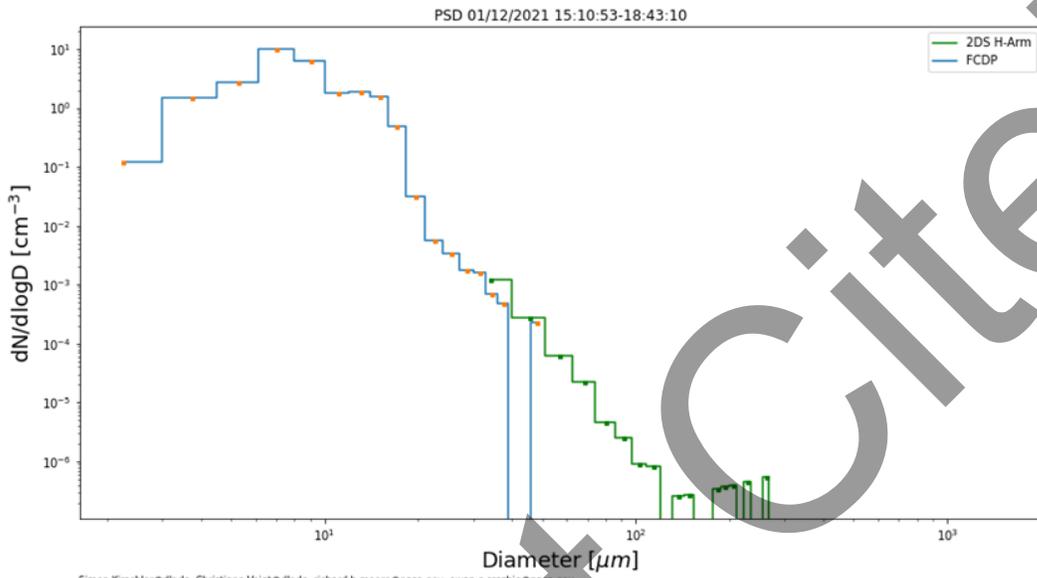
preliminary data, only for quicklook use

Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie

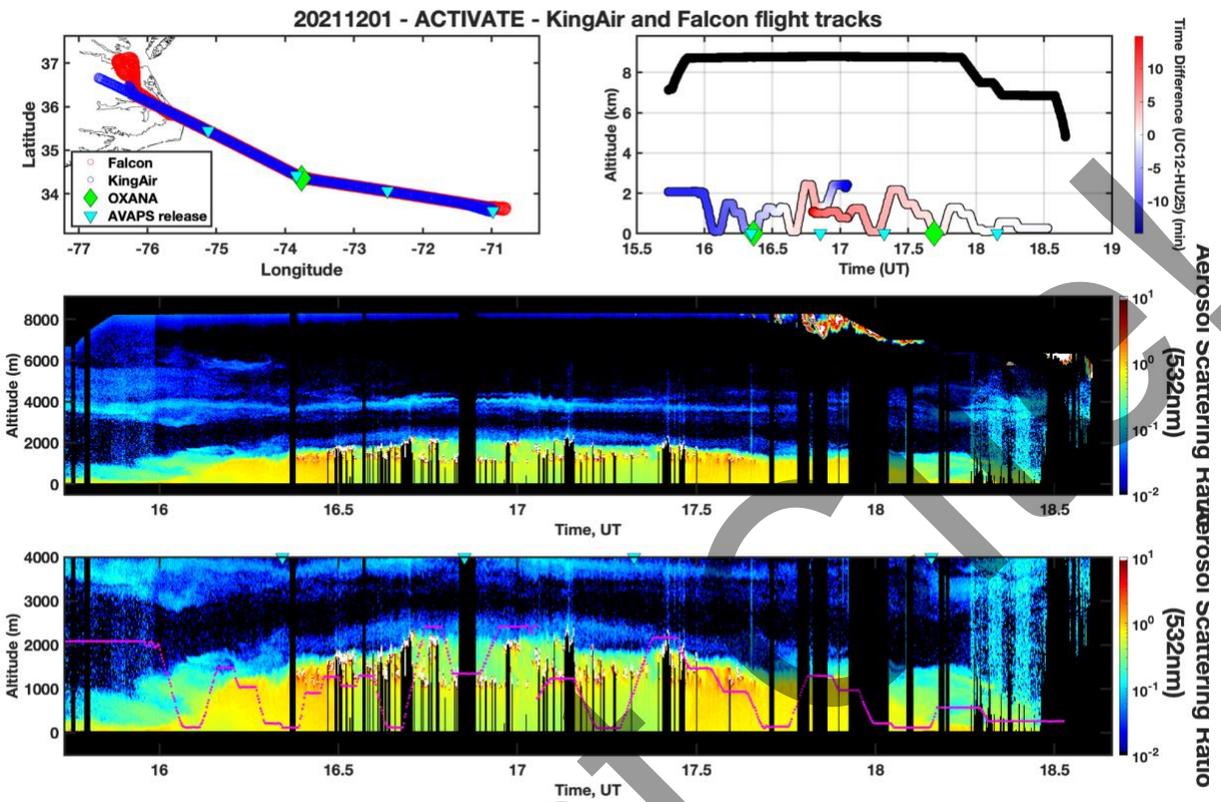


# PSD ACTIVATE

preliminary data, only for quicklook use  
Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie



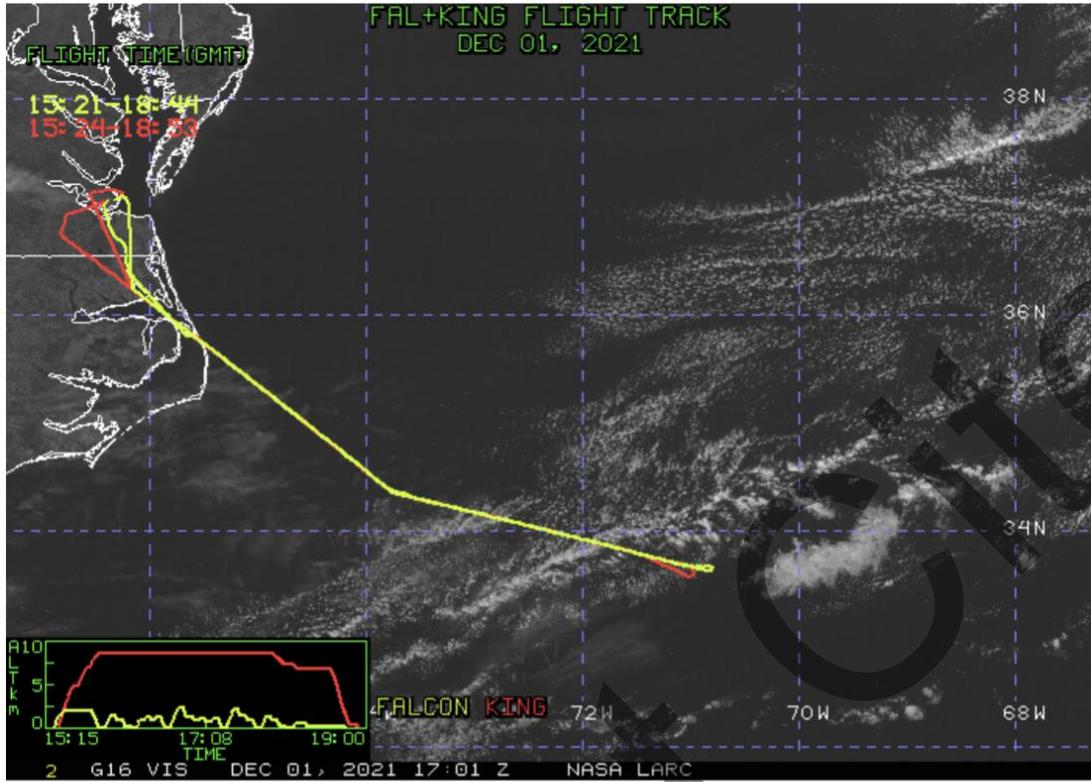
- Only shallow liquid clouds



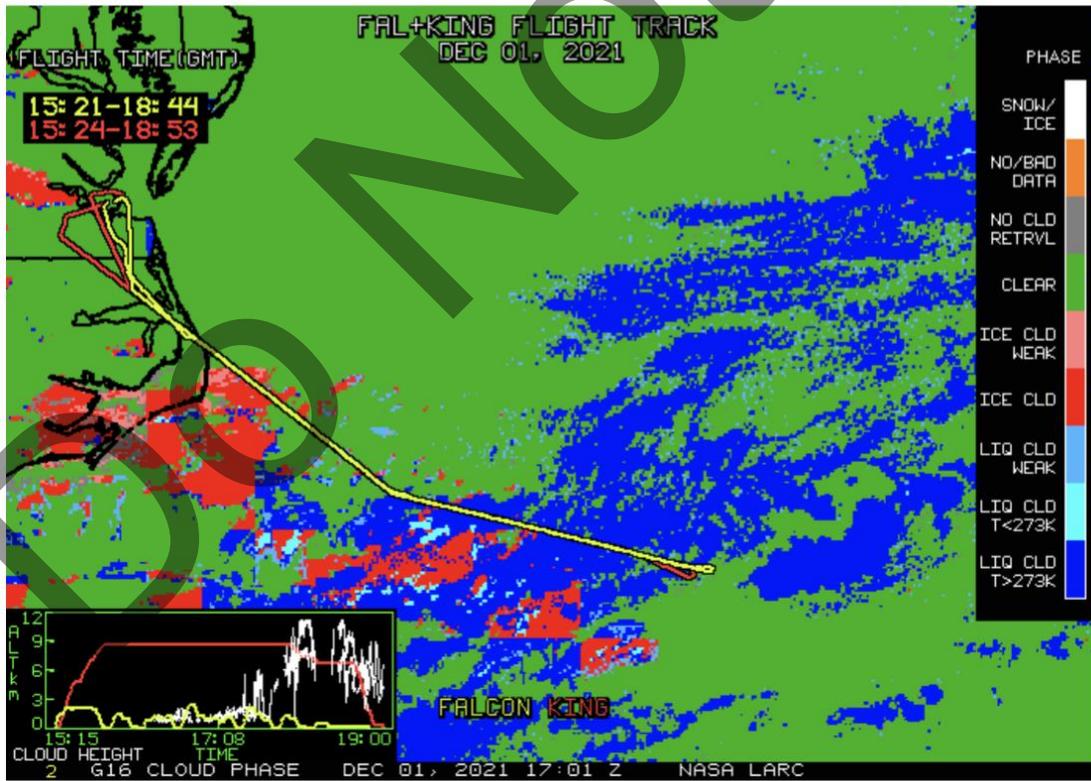
NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 95, 17:01 UTC Dec 01, 2021

DO NOT

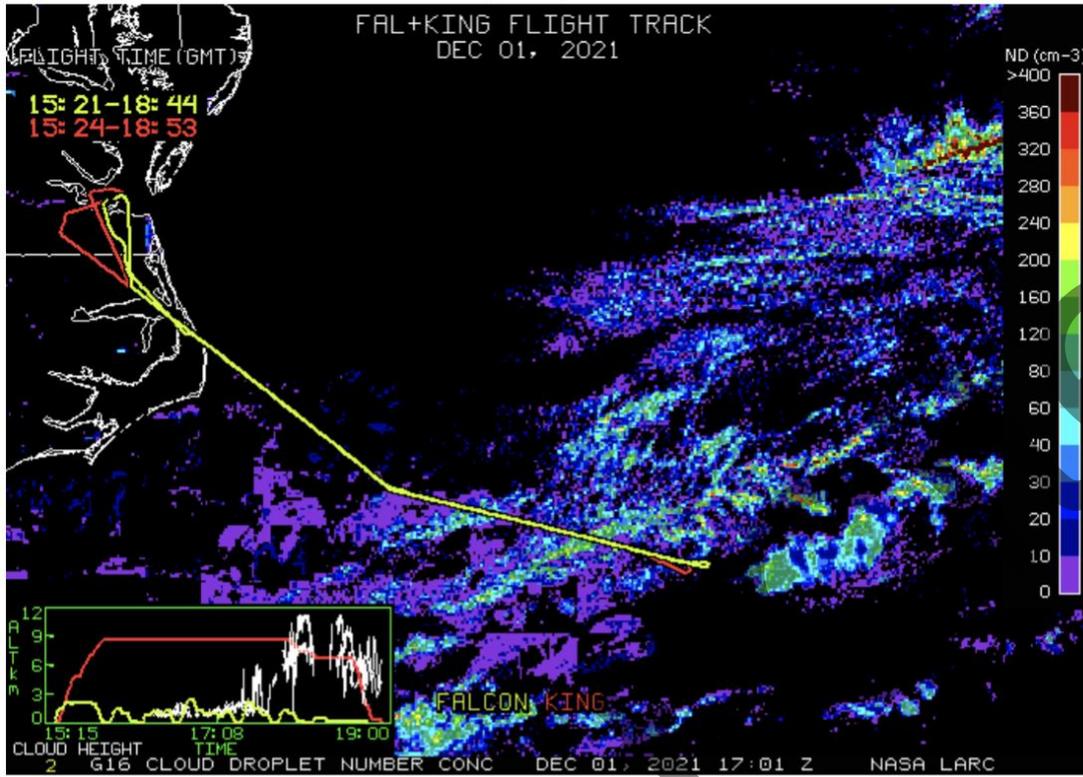
Visible Image



Cloud Phase



Cloud Droplet Number Concentration (cm-3)



Cloud-Top Height (Kft-ASL)

